

Carbon Trade Market

Nidhi Bothra

nidhi@vinodkothari.com

Vinod Kothari & Company

The climatologists, the geologists and researchers from related field have been saying that the Earth will face a barrage of atmospheric disturbances like earthquakes, cyclones, inundations and epidemics as the climate shifts from a mild phase to a warm phase – popularly known as ‘Global Warming. The message is clear for everyone – *take care of the environment or the environment will take care of you.*

With the concerns for global warming growing with the rising temperature, world at large is becoming more cautious and is devising new means of bringing synergies to stabilize concentration of greenhouse gases emission into the atmosphere in order to save the world from the detrimental effect of interference with the climate.

Kyoto Protocol, Unites Nations Framework Convention on Climate Change (UNFCCC) aimed at combating with such global warming issues and was successful in reducing emissions to some extent. The treaty was signed and ratified by 187 countries and the countries committed themselves to the reduction of emission of green house gases from the benchmark levels set at 1990s. It was through this Protocol that the terms emission trading, clean development mechanism (CDM) joint implementation, carbon derivatives etc were coined. The Kyoto Protocol spoke about ‘**common but differentiated responsibility,**’ which is reflective in the strategies endorsed to reduce the greenhouse gases emissions in general and carbon emissions in particular. The developed countries were called to shoulder a greater responsibility as the emissions levels in such countries were higher than in the developing countries.

There are several avenues through which a country can earn carbon credits and also trade in the same.

- **Clean Development Mechanism (CDM)** – This is a mechanism through which a developed country sets up a venture in developing country reducing carbon emissions as an alternative to more expensive emission reductions in their own country. CDMs are useful as they help the developed countries to lower the cost for emission reduction and enable the developing countries to achieve technology transfer and sustainable development. What is crucial to the understanding of ‘approved’ CDMs is that for any project to be approved by the CDM executive board, the project should result in reducing the greenhouse gas emissions not mandated by law or regulatory authority but should be able to achieve additional emission reduction from what it would have anyways contributed to sans the project or statutory compliance. For instance switching to unleaded petrol is not reducing emissions voluntarily it as per the stated norms however setting up a

waste heat recovery plant that saves energy will surely earn some CERs to the factory.

The cost of technology involved in taking up such projects are humungous, thus carbon financing is critical to the development of any CDM project. These projects are undertaken in developing countries, which has a twin benefit a) it would reduce the cost of setting up the project in a developing nation and b) it would provide the developing nation with technology input and sustainable development; besides it would also earn the developed nation Certified Emission Reductions (CERs). There is a primary CER market wherein the trades are conducted through emission reduction purchase agreement (ERPAs) and the secondary market for CERs that involve trades in generic issued or guaranteed-delivery CERs that have been traded in previously. CERs are in the form of certificates, just like a stock. If a project generates energy using wind power instead of burning coal, and in the process saves (say) 25 tonnes of carbon dioxide per year, it can claim 25 CERs (One CER is equivalent to one tonne of carbon dioxide reduced). The detailed procedure for understanding CDM can be viewed here <http://cdm.unfccc.int/index.html>

- **Joint Implementation (JI)** – Joint Implementation projects are expected to take place in ‘economies in transition’, where there are caps set in for emissions. Emission reductions are awarded as Emission Reduction Units (ERUs) which come from the host country’s pool of assigned emission credits known as Assigned Amount Units (AAUs). In JIs the total amount of emission credits does not change, whereas CDM projects must provide for additional emission reductions to what it would otherwise have occurred. The Joint Implementation projects are supervised by the Joint Implementation Supervisory Committee (JISC). The eligibility requirements and baseline criteria and methodology can be viewed <http://ji.unfccc.int/index.html>
- **Emissions Trading** - Kyoto Protocol introduced the concept of ‘cap and trade’ system. Simply put carbon dioxide emissions would be capped and the right to emit could be traded. For instance, for Country A required reduction in carbon emission are 10 units and can generate 20 units of carbon emission at price P (which is the affordable price), whereas Country B has required reduction in carbon emissions as 10 units but at price P it can only reduce 5 units. CDM provides Country B with an opportunity to generate 5 units of carbon emissions in the country and will trade the rest 5 units from Country A. Thus the net cost of financing emission reductions would come down considerably leaving both the countries in the win-win position. EU Greenhouse Gas Emission Trading System (EU-ETS) is an offspring of the cap and trade system, others being UK Emissions Trading Group (ETG), Chicago Climate Exchange (CCX), and the New South Wales Greenhouse Gas Reduction Scheme. The EU-ETS is the largest greenhouse gas emissions trading scheme in the world. It implements a mandatory "cap and trade" system in 27 EU member countries. The EU carbon market is estimated to be worth Euro 90 billion – approximately \$131 billion a year and the cap and trade system has been reasonably able to meet its objective of carbon emission reduction whereas the emission levels have gone up for the rest of the world. As per a Bloomberg report the global carbon market is expected to reach US\$2trillion

by 2025. Apart from the primary market of trading in carbon credits, there are two other markets prevalent.

- **Voluntary Markets** – A voluntary carbon market exists outside the compliance market that is outside the Kyoto compliant mechanism. The Chicago Climate Exchange, is a member based exchange for voluntary GHG reductions, trading and registry for the United States. The carbon credits generated outside the compliance mechanism are verified and traded in the global over the counter market for greenhouse gas emissions and are called verified emission reductions.
- **Secondary market** – The secondary market for carbon credits is a very active market. At present the secondary market of carbon credits involves European Union Emission Trading System (EU ETS), Chicago Climate Exchange, European Climate Exchange, Nord Pool (Norway, Denmark, Sweden, Finland) etc. The two prime categories of carbon instruments that can be traded in the marketplace will be 1) carbon allowances or the offset credits and 2) allowance derivatives.

Carbon derivatives would be mainly swaps, options & futures that would allow companies to lock in pricing on carbon units. While the idea of trading the emissions rights and having trade in carbon derivatives is the basic intention of price discovery and liquidity, the hostility with regard to the term derivatives itself is very visible and prominent, more so after the financial crisis of 2008-09. While in the several bills passed on the derivatives issue, demanding more regulatory requirements and shunning few of the derivatives, the idea of carbon derivatives is not at all welcomed, including stalwarts like George Soros who called the emissions trading for climate control as ‘ineffective.’

Significance of Carbon Trading

The modus operandi of the cap and trade system is simple. Each year the governments across the world would agree to yearly carbon emissions limits and the government in turn would be selling permits to the pollutes. This is why carbon trading has grown exponentially as carbon emissions entails additional costs and less emission means extra profits besides doing environment some good. It also does not matter who pollutes and who innovates as long as the country is able to keep the emissions well in the limit.

With increased economic activity these carbon allowances would be scarce and would not be easily available as they are in the present times. With the passage of time the limits provided to the various industries will be reduced, so as they become scarce, those who have a surplus of this would want to sell it to those are in need of it.

The banks are gearing up to do market carbon derivatives contracts that will help companies hedge price risk over the long term also selling carbon-related financial products to outside investors. But entire role the banks played in the credit crisis has become central to the carbon derivatives debate more so in the United States of America.

State of Global carbon market

Carbon emission rights are scarce and are considered as a valuable asset for trade. Some 2.8 billion tons of carbon dioxide were traded in the EU-ETS in 2008, accounting for nearly 60 percent of the world's total, compared to 94 million tons in 2005. There are now more than 20 platforms for trading carbon in the world, with two main trade targets, namely, carbon emissions quota and related financial derivatives, and emission mitigation projects. The EU-ETS aims to further tighten emission targets and increase carbon emissions trading from 2012 to 2020. The United States is planning for a federal carbon trading market. Australia, Canada and Japan are also working on setting up policy frameworks, which would pave the way for their domestic carbon emission markets.

Futures trading on ECX in the first three months of 2009 topped more than 230 million sCERs, putting the market on track for a 40% increase in futures contract trading volume. Exchange-based spot trading also grew with the increase in CER issuance and the launch of a CER spot contract on Bluenext in August 2008 and on ECX in March 2009. Options on CERs started to emerge in the second half of 2008. The sCER market continues to be dominated by European traders to hedge their exposure to price or volume risks in primary markets. This is the primary reason why Wall Street is showing immense interest in trading in carbon derivatives and millions of dollars have been spend in lobbying.

The global financial crisis has had an effect on demand and supply of carbon credits as well. With the economic output shrinking, there were more carbon allowances available with companies than required and so trading levels were high as, providing corporates with an additional way of improving their bottomline in the hard pressing times. Though the overall carbon market continued to grow in 2008, reaching a total value transacted of about US\$126 billion (€6 billion) at the end of the year, double its 2007 value, there had been a notable fall in the CDM projects and JIs being implemented, partly because of the challenging times and partly because of delayed registrations, stringent issuances and difficulty in obtaining finances.

The primary market for project based emissions has slowed down as is evident from the table below indicating the Annual Volumes and Values (2007-08) for Project-based Transactions:

	2007		2008	
	Volume (MtCO ₂ e)	Value (MU\$)	Volume (MtCO ₂ e)	Value (MU\$)
Primary CDM	552	7,433	389	6,519
JI	41	499	20	294
Voluntary market	43	263	54	397
Sub-total	636	8,195	463	7,210
Secondary CDM	240	5,451	1,072	26,277
TOTAL	876	13,646	1,535	33,487

Source:http://siteresources.worldbank.org/EXTCARBONFINANCE/Resources/State_and_Trends_of_the_Carbon_Market_2009-FINALb.pdf

As is evident from the figures above, though the primary CDM market had contracted, the secondary CDM market grew exponentially. EU ETS continued to dominate the global carbon market in 2008, with transactions valued at US\$92 billion (€63 billion), which represented an 87% year-on-year growth over 2007. Over three billion EUA spot, future and option contracts traded for a variety of purposes, including compliance, risk management, arbitrage and profit-taking.

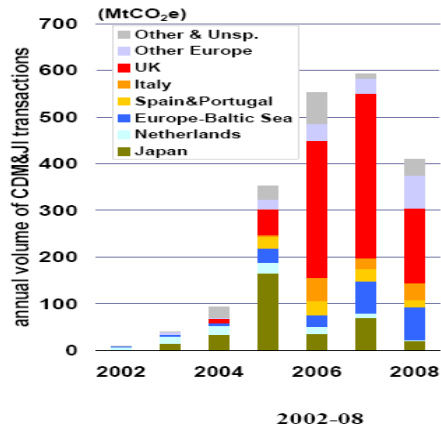
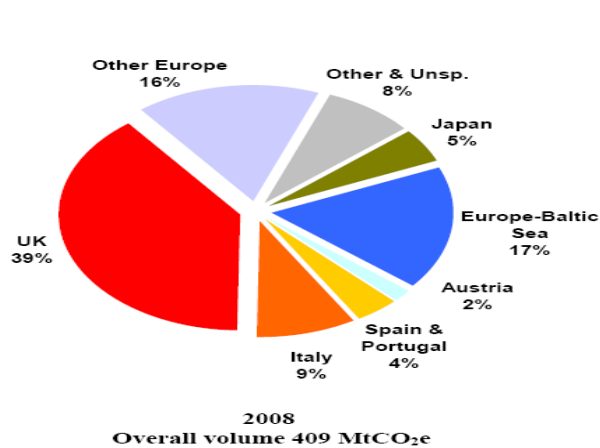
United States of America

U.S has woken up to the need to respond to the climatic changes and has proposed legislations like the Climate Security Act, Clean Energy and Security Act, California Global Warming Solutions Act to establish the cap and trade program and bring down the global emission levels

The Chicago Climate Exchange (CCX) had made voluntary, but firm commitments to reduce GHG emissions by 6% below a baseline period of 1998-2001 by 2010. U.S is targeting to bring down its emission levels 4% below the 1990 levels by the end of 2020

European Union

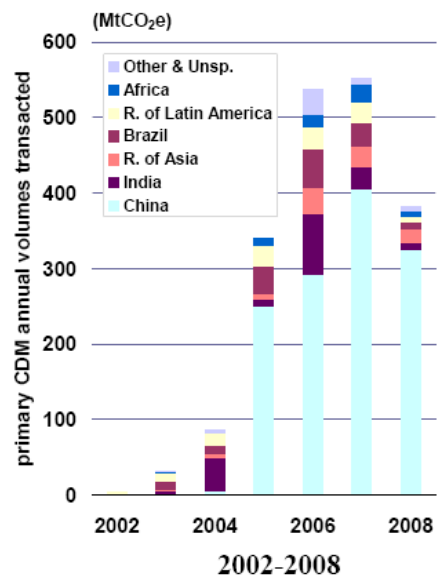
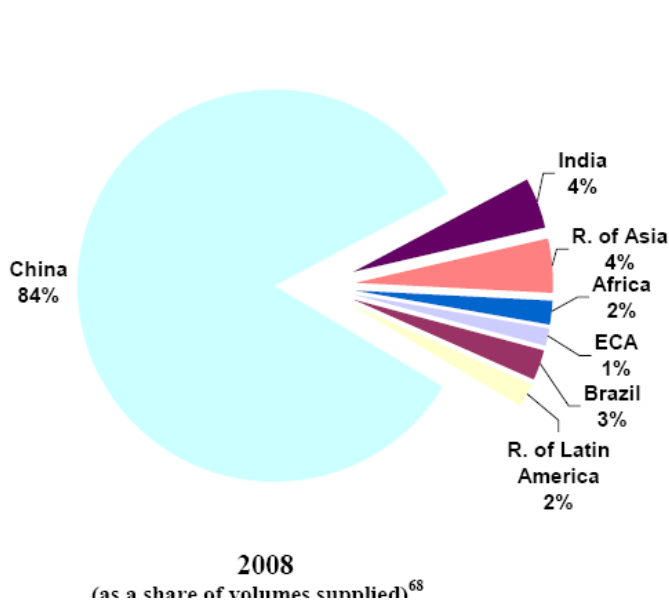
European countries have always been the forefront buyers of primary CERs, continue to be bullish in the primary markets and shall remain largely in demand for CERs which is welcomed news for developing countries like India. The European countries, specially the private sector companies are purchasing primary CERs with an eye to their Phase III future compliance needs as well as on making small profits from trading. The figure below shows the volume share of the primary CDM and JI buyers:



In spite of the price spreads between the primary CERs and the secondary CERs narrowing in 2008, causing diversions into the secondary market to purchase guaranteed CERs in the secondary market, European countries have been reported to be 'active' in the primary markets

China

China on the other hand continued to be the dominant seller closely followed by India and Brazil, accounting for 84% of the market share in 2008. The chart below indicates the location of CDM projects during the years.



India

Whether it is the Delhi Metro Rail Corporation or Navi Mumbai Municipal Corporation, every one is earning carbon credits. Call it a fad, a new avenue of earning or just a way taking care of the corporates' social responsibility and doing some good to our own environment, everyone is into carbon credits. If you are polluting the environment now is the situation where you would have to pay to do so. The demand for renewal sources of energy would grow over a period of time and with the increase in economic activities so would the need for these carbon credits. India already is the second largest country in terms of CDM project, second only to China but stands first in matters of implementation of these projects. Till the end of the first quarter of 2009, 442 CDM projects have been registered in India and the market is expected to grow at around US\$100 billion by 2010. From India's perspective India's per capital emission figures as compared to other nations is very low; India is being viewed as one of the potential countries for CDM projects.

To ensure that India also has a systematic approach at combating with the Climate Changes, the Government of India has released its '**National Action Plan on Climate Changes**' (NAPCC) <http://www.energymanagertraining.com/NAPCC/main.htm>

India too has been on the forefront with regard to developing an active trading market for these carbon credits. Multi Commodity Exchange of India Limited (MCX) in alliance with the Chicago Climate Exchange had introduced carbon credit trading in India in 2005. Futures trading in carbon credits began in 2008 that made MCX the first commodity exchange in Asia to trade in carbon futures.

Though carbon trading is a trend soon catching up in India as well, there are several issues that unaddressed and have been left to best judgment and interpretations. For instance accounting issues relating to carbon credits whether CERs are to be treated as intangible assets or they would be treated as inventory under AS 2 or it should be treated as a separate segment and reported under AS 17. The Council of the Institute of Chartered Accountants of India (ICAI) has issued a guidance note on CERs, effective from 1st July, 2009, but has not been able to resolve several issues as mentioned. There are several taxation issues as well. Whether, income from sale of CERs would be treated as income arising from business and profession or taxed as capital gains and how depreciation would be claimed as expense for the emission reduction units and the treatment for self-generated credits and so on. Question with regard to disclosures of such income as per Schedule VI to the Companies Act, 1956 are unaddressed.

Criticism of the present mechanism

Auctioning vs. Allocation of allowances

With the growing economic activity, the need for these allowances would grow. It is then thought prudent that these allowances would not be allocated freely, but would be auctioned. Auctioning would ensure that the companies do not use the free allowances as a means to earn additional profits and would use these allowances judiciously. This is yet

another reason that in the coming times the secondary market shall play a very crucial role.

The cap and trade system has been able to discipline the emissions to some extent. However the system is not flawless. The cap and trade system has been often ridiculed as *cap and giveaway system*, where governments are flamboyant in giving away extra permits to industries. The system of offset permits had structural loopholes which exposed several instances of scams making the whole process ineffective.

Besides the cap and trade system of EU's law enforcement organization Europol has estimated that 90% of the carbon credit trading within the EU Emission Trading System (ETS) has been caused by fraudulent activities causing member states to lose EURO 5 billion, approx, in taxes. So the apprehensions of meeting the intention of this initiative are huge and genuine.

Nobel-prize winning economist Paul Krugman says carbon markets aren't the open door to Wall Street shenanigans some fear. "Emissions permits aren't subprime mortgages, let alone complex derivatives based on subprime," he says. "They're straightforward rights to do a specific thing. It will truly be a tragedy if people generalise from the financial crisis to block crucially needed environmental policy."

There are others like Senator Maria Cantwell (D-Wash.) and Susan Collins (R-Maine) who have suggested an alternative to the "cap-and-trade" proposals in the US, which is based on a system of refunding the revenues generated by emission auction to the taxpayers in the form of dividend. The proposal does away with the system of offsets and has introduced the concept of Clean Energy Reinvestment Trust (CERT). This proposal has been welcomed by many but it yet to be seen whether the apprehensions of the public at large with regard to the cap and trade system in general and carbon derivatives in particular would hold true, whether US and other countries would learn from the mistakes apparent of their counterpart UK while implementing its climate strategies or there is some alternative solution that would be endorsed, is yet to be seen.

Whether the regulatory agencies run into the risk of issuing too many emission credits, whether carbon credits are to be traded as financial instruments or as commodity, whether trading in carbon would be the next bubble, there are several apprehensions being tossed in the air, but the million dollar question, is whether all of these strategies meet its actual purpose of reducing emission of greenhouse gases from the atmosphere and save us from the climatic disaster; is yet to be seen.

What ever the future may have in store for us, the verdict for today is that there is opportunity waiting for the corporates to take a go at it.